

## DRAWINGS ATTACHED

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(54) IMPROVEMENTS IN OR RELATING TO TYRES FOR THE DRIVING  
 WHEELS OF AGRICULTURAL TRACTORS AND LIKE VEHICLES

(71) We, PNEUMATIQUES, CAOUTCHOUC  
 MANUFACTURE ET PLASTIQUES KLEBER-  
 COLOMBES, a French Body Corporate, of  
 Place de Valmy, 92 Colombes, France, do  
 hereby declare the invention, for which we  
 pray that a patent may be granted to us,  
 and the method by which it is to be per-  
 formed, to be particularly described in and  
 by the following statement:—

The present invention relates to tyres for  
 the driving wheels of agricultural tractors  
 and like vehicles intended to move over loose  
 or slippery ground.

Generally, tractor tyres are provided with  
 bars on the tread pattern to impart good  
 adhesion on loose or slippery ground, these  
 bars having a very pronounced surface, in-  
 clined at approximately 45° with respect to  
 the mid-circumferential plane and placed  
 on both sides of the tread.

Unlike the relief portions of tyre tread  
 patterns intended for other purposes, the  
 bars as aforementioned are well spaced out  
 around the circumference, the distance be-  
 tween any two successive bars being of the  
 order of 4 to 7 times the thickness of the  
 bars themselves. The bars then have be-  
 tween them generally smooth surfaces which  
 form what may conveniently be defined as  
 the "base configuration" of the tread.

Working on loose soil, the bars sink com-  
 pletely into the ground and the pull is trans-  
 mitted primarily through the lateral faces be-  
 hind the bars operating like paddles. An-  
 other part of the pull is transmitted by fric-  
 tion by the surfaces between the bars.

According to the present invention there  
 is provided a tyre for a driving wheel of  
 an agricultural tractor or like vehicle, hav-  
 ing a tread pattern formed mainly of oblique  
 transverse main bars spaced apart circum-  
 ferentially, by at least three times the thick-  
 ness of said bars, wherein the surfaces of  
the tread between said bars have relief por-  
tions to increase the adhesion of the surfaces  
on the ground and assist the self-cleaning of  
the tyre, said relief portions having a radial  
height measured from the generally smooth

"base configuration" as herein defined not  
 exceeding one third the radial height of the  
 main bars.

Advantageously the said base configura-  
 tion relief portions are formed of bars, slabs  
 or studs projecting from the tread surfaces  
 between the main bars.

Conveniently the said relief portion bars  
 are arranged transversely to the circumferen-  
 tial direction of the tyre.

Alternatively the said relief portion bars  
 are approximately parallel to the main bars.

In accordance with one embodiment of the  
 invention the said relief portion bars between  
 any two main bars are transversely displaced  
 relative to one another.

The relief portions come into contact with  
 the ground only when the tyre rolls along  
 loose ground into which the main bars may  
 sink. Their presence increases the contact  
 and the adhesion of the surfaces between  
 the bars and the ground, and consequently  
 reduces the slip for a given pull. Moreover,  
 it has been proved surprisingly that this ar-  
 rangement assists in the self-cleaning of the  
 tyre by improving the expulsion of the earth  
 which is taken up between the bars, in those  
 areas where the tyres with ordinary bars  
 have a strong tendency to clog up. It ap-  
 pears that this tendency to self-cleaning is  
 due to a much larger movement of the sur-  
 faces between the bars at the places where  
 the curve of the tyre changes, in front of  
 and behind the contact surface of the tyre  
 on the ground.

In order that the invention may be more  
 clearly understood, reference will now be  
 made to the accompanying drawings which  
 show by way of example certain embodi-  
 ments thereof and in which:—

Figures 1 and 2 show a perspective view  
 and a cross-sectional view respectively of a  
 tyre of a driving wheel for an agricultural  
 tractor with small intermediate bars, and

Figure 3 shows a perspective view of a  
 tractor tyre with another intermediate con-  
 figuration.

Referring now to the drawings, in the

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case of Figures 1 and 2, the tyre shown has a tread pattern formed mainly from bars 1 of the usual type inclined at approximately 45° with respect to the mid-circumferential plane. There are two sets of bars 1 oppositely inclined to the mid-circumferential plane, each one extending over a little more than half the tread width, the bars of one set being circumferentially displaced with respect to the bars of the other set, so that their inner ends are imbricated.

The bars 1 have between them surfaces of the tread 2 which, as previously indicated, are usually referred to as the "base configuration" of the tread.

According to an embodiment of the invention, these surfaces 2 carry relief portions in the form of intermediate bars 3 transversely arranged with respect to the mid-circumferential plane and mutually displaced from an edge of the tread up to approximately the mid-circumferential line thereof, the intermediate bars 3 having a transverse length less than half the width of the tread. The lengths of the intermediate bars 3 may, furthermore, be unequal to the breadth of the group of intermediate bars formed between two main bars 1, i.e. the bars may as illustrated be mutually staggered transverse to the tyre mid-circumferential plane. Their circumferential spacing may be about equal to or double their width.

The projecting radial height of the intermediate bars 3 is much less than that of the main bars 1 and is not in excess of a third of this latter.

In the case of Figure 3, the intermediate bars 3 are inclined at about 45° to the mid-circumferential plane like the main bars 1. As shown they are not staggered and each have the same length.

The intermediate bars 3 may be replaced by other forms of relief portions such as

slabs or studs or such portions may be defined by slots or grooves.

#### WHAT WE CLAIM IS:—

1. A tyre for a driving wheel of an agricultural tractor or like vehicle having a tread pattern formed mainly of oblique transverse main bars spaced apart circumferentially, by at least three times the thickness of said bars, wherein the surfaces of the tread between said bars have relief portions to increase the adhesion of the surfaces on the ground and assist the self-cleaning of the tyre, said relief portions having a radial height measured from the generally smooth "base configuration" as herein defined not exceeding one third the radial height of the main bars.

2. A tyre as claimed in claim 1 wherein the said base configuration relief portions are formed of bars, slabs or studs projecting from the tread surfaces between the main bars.

3. A tyre as claimed in claim 2 wherein the said relief portion bars are arranged transversely to the circumferential direction of the tyre.

4. A tyre as claimed in claim 2 wherein the said relief portion bars are approximately parallel to the main bars.

5. A tyre as claimed in claim 2, 3 or 4 wherein the said relief portion bars between any two main bars are transversely displaced relative to one another.

6. A tyre substantially as hereinbefore described with reference to Figures 1 and 2 of the accompanying drawings.

7. A tyre substantially as hereinbefore described with reference to Figure 3 of the accompanying drawings.

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Sheet 1

Fig. 1

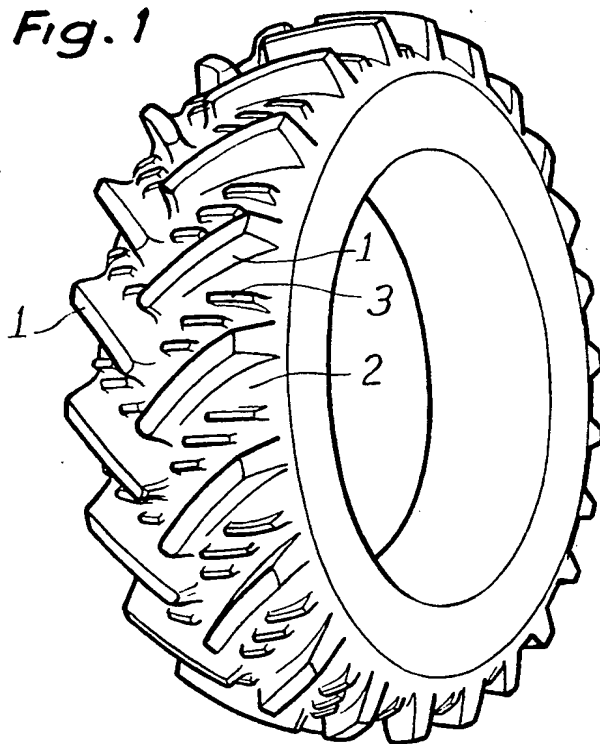
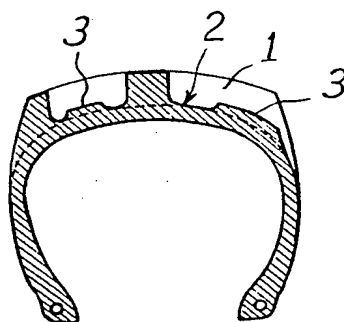


Fig. 2



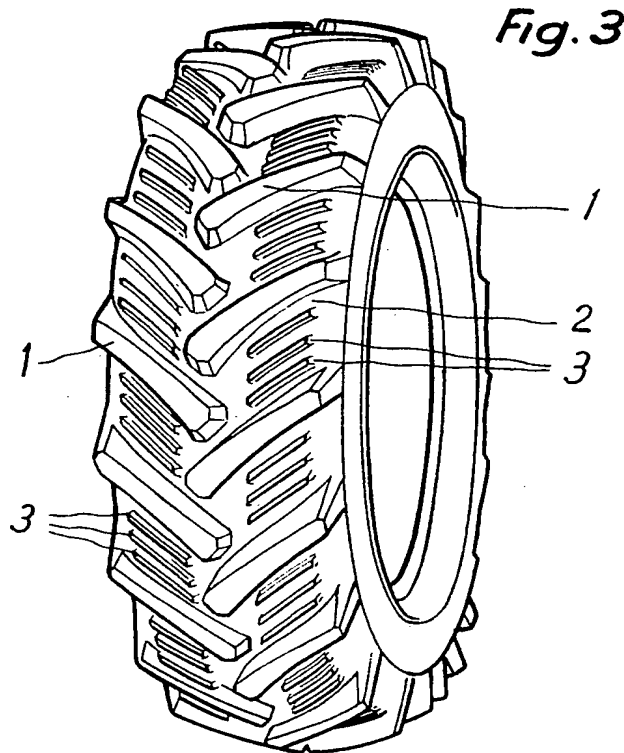
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